We claim:

1. A process for preparing a shell-type catalyst which comprises applying to a substantially nonporous inorganic support material having a BET surface area of $< 80\ m^2/g$, a catalytically active outer shell of a suspension containing at least one water soluble noble metal compound and a substantially water insoluble coating compound, drying said suspension onto the support material, and activating said support material in a reducing gas stream at an elevated temperature.

2. The process of claim 1, wherein said support material is a granulate, or a molded article of glass, quartz, ceramic, silica, alumina, graphite, molded carbon, metal, or steatite.

3. The process of claim 1, wherein said support material is a molded article of at least one of SiO_2 and Al_2O_3.

4. The process of claim 2, wherein said molded article is at least one of a hollow extrudate, solid extrudate, sphere, granule, tablet, and strand.

5. The process of claim 1, wherein the support material has a diameter of from about 0.5 mm to about 50 mm.

6. The process of claim 1 wherein the BET surface of said support material is $< 10\ m^2/g$.

7. The process of claim 1, wherein said substantially nonporous support material has a pore volume of $< 0.5\ m\ell/g$.

8. The process of claim 1, wherein said substantially nonporous support material has a pore volume of < 0.1 mℓ/g.

9. The process of claim 1, wherein said support material has a Fe_2O_3 content of about < 0.5 % wt.

10. The process of claim 1, wherein said water soluble noble metal compound is at least one compound of Ru, Rh, Pd, Ag, Os, Ir, Pt, and Au.

11. The process of claim 10, wherein said water soluble compound is at least one oxide, hydroxide, carbonate, halide, nitrate, salt of organic acid, and complex compounds of said noble metal.

12. The process of claim 1, wherein said suspension contains about > 1 % wt. aqueous solution of said water-soluble noble metal compound, calculated as the metal.

13. The process of claim 1, wherein said suspension contains about > 5 % wt. aqueous solution of said water-soluble noble metal compound, calculated as the metal.

14. The process of claim 1, wherein at least 0.01 % wt. of said noble metal compound, calculated as the metal, is soluble in water at 30°C.

15. The process of claim 1, wherein said water insoluble coating material is a metal oxide, less than 4 % wt. of which, calculated as the metal, is soluble in water at 30°C.

16. The process of claim 15, wherein said oxide is at least one of SiO_2, Al_2O_3, TiO_2, and ZrO_2.

17. The process of claim 16, wherein the maximum average agglomerate size of said oxide is about 15 μm.

18. The process of claim 16, wherein the agglomerate size of said oxide is from about 3 μm to about 7 μm.

19. The process of claim 1, wherein the BET surface area of said support material is from about 50 m^2/g to about 500 m^2/g.

20. The process of claim 15, wherein the compacted density of said metal oxide is from about 10 g/ℓ to about 800 g/ℓ.

21. The process of claim 1, wherein the weight ratio of said water soluble noble metal compound to said water insoluble coating compound, calculated as metal, is from about 0.1:1 to about 5:1.

22. The process of claim 21, wherein the weight ratio of the noble metal compound to coating compound is between from about 0.5:1 and about 2:1.

23. The process of claim 1, wherein the weight ratio of the noble metal compound, calculated as the metal, to the total weight of shell-type catalyst is between from about 0.0001:1 and about 0.02:1.

24. The process of claim 1, wherein the weight ratio of the coating compound to the total weight of the shell-type catalyst and calculated as metal, is from about 0.0005:1 to about 0.04:1.

25. The process of claim 1, wherein the thickness of the coating shell of the catalyst is from about 0.1 μm to about 20 μm.

26. The process of claim 1, wherein the concentration of the water soluble noble metal component calculated as the metal, is from about 0.1 % wt. to about 1 % wt. based on the catalyst.

27. The process of claim 1, wherein the concentration of the water insoluble coating component, calculated as the metal, is from about 0.05 % wt. to about 1 % wt. based on the catalyst.

28. The process of claim 1, wherein said reducing gas stream contains hydrogen.

29. The process of claim 1, wherein said suspension further comprises an adhesion promoter.

30. The process of claim 29, wherein said adhesion promoter is water glass.

31. The process of claim 26, wherein said suspension further comprises a doping compound.

32. In a process for the removal of acetylene from hydrogen chloride gas formed in the oxychlorination of preparing vinyl chloride, the improvement which comprises hydrogenating the acetylene in said hydrogen chloride gas in the presence of a catalyst prepared by the process of claim 1.

33. A shell type catalyst when made by the process of claim 1.